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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
Board of Patent Appeals and Interferences

In re application of:	Hadian, et al.	)
Serial No:	10/092,453	) Art Unit 2652
Filed:	March 6, 2002	)
For:	COMPOSITE HEAD ARM ASSEMBLY WITH THERMAL CONTROL OF GRAM LOAD	)
Examiner:	Davis, David Donald	)
Attorney Docket:	3123-427 / 20011.05	)

BRIEF ON APPEAL

Mail Stop Appeal Brief Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This is an appeal to the Board of Patent Appeals and Interferences from the Examiner's Final Rejection of pending claims 98-138 in the present application. A Notice of Appeal and required fees are being filed concurrently herewith. This Brief on Appeal was timely filed within two months of the Notice of Appeal and with the required fees.

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I. Real Party in Interest

The real party in interest is Maxtor Corporation, assignee of the present application.

II. Related Appeals and Interferences

There are no appeals or interferences that are known which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending Appeal.

III. Status of Claims

Claims 98-138 are pending in the present application. Claims 1-97 have previously been canceled without prejudice. Claims 98-138 are the subject of this appeal.

IV. Status of Amendments

No amendments to the claims have been filed subsequent to final rejection.

V. Summary of Claimed Subject Matter

The following is a summary of the claims that are the subject of the instant appeal.[1] As an overview, the inventors devised an adjuster 40 that passively adjusts the gram load of a slider 248 in a disk drive 10 caused by normal changes in temperature within the disk drive 10 to maintain the slider 248 within a desired fly height range. (Page 2, lines 13-29; page 5, lines 25-27; page 7, lines 1-4; page 10, line 28 through page 12, line 17; Figures 2B, 2C, 2D, 3B, 4B and 5B). The adjuster 40 includes two different materials having different rates of thermal expansion. (Page 3, line 26

[1] The reference characters provided within the summary are representative of some embodiments, but not necessarily all embodiments, disclosed within the present application. Other embodiments may have different reference characters, which have been omitted in this section to avoid confusion.

through page 4, line 9; page 10, lines 5-27; page 12, lines 24-31; page 15, lines 5-10; page 16, line 25 through page 17, line 7; page 18, lines 7-8). The gram load is transmitted to the slider 248 in a direction that is substantially perpendicular to a storage disk 26 by a head-arm assembly 18 that supports the slider relative to the storage disk 26. (Page 2, lines 3-7). With this design, any change in temperature of the adjuster 40 ultimately causes movement of the slider 248 toward and/or away from an adjacent storage disk 26 in the disk drive 10, thereby adjusting the gram load of the slider 248. (Page 2, lines 13-29; page 5, lines 25-27; page 7, lines 1-4; page 10, line 28 through page 12, line 17; Figures 2B, 2C, 2D, 3B, 4B and 5B).

In one embodiment, the present invention is directed to a disk drive 10 including a drive housing 12, a storage disk 26 coupled to the drive housing 12 and a head arm assembly 18 coupled to the drive housing 12. (Page 5, line 28 through page 6, line 4; Figure 1). The head arm assembly 18 includes an adjuster 40 and a slider 248 coupled to the adjuster 40. (Page 6, lines 17-18 and lines 27-30; Figure 2A). The adjuster 40 can include a first layer 262 and an adjacent second layer 264. (Page 8, lines 12-16; Figures 2B, 2C, 2D, 3B, 4B and 5B). In some embodiments, the first layer 262 has a first composition with a first material property, and the second layer 264 has a second composition with a second material property that is different than the first material property. (Page 3, line 26 through page 4, line 9; page 10, lines 5-27; page 12, lines 24-31; page 15, lines 5-10; page 16, line 25 through page 17, line 7; page 18, lines 7-8). For example, the first layer 262 can have a coefficient of thermal expansion that is different than a coefficient of thermal expansion of the second layer 264. (Page 10, lines 5-27). Further, the first layer 262 can have a modulus of elasticity that is different

than a modulus of elasticity of the second layer 264. (Page 10, lines 5-21). In another embodiment, the first layer 262 is formed from a different metal than the second layer 264. (Page 10, lines 10-27).

In yet another embodiment the head arm assembly 518 includes a second adjuster 578 that adjusts the gram load that is applied to the slider 248. (Page 6, lines 17-18; page 15, lines 13-21; Figures 5A and 5B). In this embodiment, the head arm assembly 518 includes an arm beam 536, and the second adjuster 578 is incorporated as part of the arm beam 536. (Page 6, lines 17-18; page 15, lines 13-21; Figures 5A and 5B).

The first layer 262 can have a substantially similar thickness as the second layer 264. (Page 9, lines 5-8; page 16, lines 6-9). Alternatively, the thickness of the layers 262, 264 can differ. (Page 9, lines 5-8; page 16, lines 6-9; page 18, lines 8-11). The adjuster 40 applies a gram load to the slider 248 that at least partially depends upon the temperature of the layers 262, 264. (Page 10, line 28 through page 12, line 17).

In another embodiment, the head arm assembly 18 includes a non-electrically actuated adjuster 40 and a slider 248 coupled to the adjuster 40. (Page 7, lines 1-4; Figures 2B, 2C, 2D, 3B, 4B and 5B). The adjuster 40 adjusts the gram load that is applied to the slider 248 when the temperature of the adjuster 40 changes. (Page 10, line 28 through page 12, line 17).

The present invention is also directed toward a method for maintaining a slider 248 within a desired flying height range as temperature changes within a disk drive 10. (Page 5, lines 25-27; page 6, lines 27-32; page 10, line 28 through page 11, line 15). In one embodiment, the method includes providing a head arm assembly 18 including the

slider 248 and an adjuster 40 having a first layer 262 and an adjacent second layer 264. (Page 8, lines 12-16; Figures 2B, 2C, 2D, 3B, 4B and 5B). The first layer 262 has a first composition with a first material property, and the second layer 264 has a second composition with a second material property that is different than the first material property. (Page 3, line 26 through page 4, line 9; page 10, lines 5-27; page 12, lines 24-31; page 15, lines 5-10; page 16, line 25 through page 17, line 7; page 18, lines 7-8). This method also includes the step of applying a gram load to the slider 248 with the adjuster 40 so that the gram load that is applied at least partially depends upon the temperature of the layers 262, 264. (Page 10, line 28 through page 12, line 17).

In yet another embodiment, the method includes providing a head arm assembly 18 including the slider 248 and a non-electrically actuated adjuster 40, and adjusting the gram load that is applied to the slider 248 with the adjuster 40 as the temperature of the adjuster 40 changes. (Page 7, lines 1-4; page 10, line 28 through page 12, line 17; Figures 2B, 2C, 2D, 3B, 4B and 5B).

VI. Grounds of Rejection to be Reviewed on Appeal:

1. Whether claims 98-138 are unpatentable under 35 U.S.C. §103(a) over Boismier et al. (US 6,501,625) in view of Fraunhofer-Ges (DE 3,844,669).

VII. Argument:

Issue No. 1: Whether claims 98-138 are unpatentable under 35 U.S.C. §103(a) over Boismier et al. (US 6,501,625) in view of Fraunhofer-Ges (DE 3,844,669).

Claims 98-138 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Boismier et al. (US 6,501,625) in view of Fraunhofer-Ges (DE 3,844,669). The Appellants respectfully appeal the rejection of claims 98-138 on the grounds that the cited combination of references does not teach or suggest the features of at least some of the rejected claims. In particular, the Appellants submit that the Examiner has included various material inaccuracies in his characterization of the cited references, as provided below. Additionally, the cited references do not provide the motivation or suggestion to combine the references. There is no clear benefit to combining the cited references. Moreover, the rejection is believed to be based upon impermissible hindsight. Finally, Fraunhofer-Ges is nonanalogous art, and is therefore believed to be an improper prior art reference. Consequently, the Appellants respectfully submit that the rejection by the Examiner under 35 U.S.C. §103(a) is improper, and should be withdrawn.

A. <u>The Cited References Do Not Teach or Suggest Features of Rejected Claims</u>

Boismier et al. is directed toward a disk drive suspension that includes a multi-layered piezoelectric actuator 40, 162. A voltage is applied to the piezoelectric actuator 40, 162 to actively control gram load. (See, for example, Col. 5, lines 11-12, 21-23 and 31-32).

The piezoelectric actuator 40, 162 is mounted to the load beam 24, 154 of the suspension using an adhesive. (Col. 4, lines 54-56; Figures 1, 2, 2A, 3 and 4). The term "load beam" is well-known in the art. Boismier et al. does not teach or suggest mounting the piezoelectric actuator to an actuator arm of the disk drive. "Actuator arm" is also a

well-known term in the art, and it is also well-known that the load beam and the actuator arm are two distinct structures.

The Examiner states in his rejection that "Boismier et al also shows in figure 1A a second adjuster 200 that adjusts the gram load that is applied to the slider 156, and wherein the head arm assembly 152 includes an arm beam 24, and the second adjuster 200 is incorporated as part of the arm beam 24." The Appellants respectfully submit that this reading of Boismier is incorrect. For example, the structure identified by reference character "24" is the load beam, not an arm beam. To the contrary, the arm beam is indicated in Figure 4 by reference character "157". The piezoelectric actuator 162 in Figure 4 (or any other Figure) is not incorporated as part of the arm beam or the actuator arm, but in every case is secured to the load beam 24, 154.

Further, the Examiner states in his rejection that "'the gram load of the head suspension assembly 152 can be changed real-time with changing drive conditions' (e.g. ambient temperature). See lines 60-63 of column 5 and lines 2-4 of Boismier et al." The Appellants respectfully submit that the parenthetical in the foregoing statement is unsupported by Boismier et al. At no time is the temperature of the drive ever mentioned in Boismier et al. In fact, Boismier et al. specifically identifies the types of "changing drive conditions" contemplated, as follows.

For instance, Boismier et al. states that periods of inactivity, vibrations and deflections represent changing drive conditions that are counteracted by changing the voltages that are applied to the piezoelectric actuator. (Col. 3, lines 41-51). Not only is Boismier et al. silent on using the piezoelectric actuator 40, 162 for changes in ambient temperature of the drive, but Boismier does not even identify temperature changes of a

drive as impacting gram load or fly height. Stated another way, Boismier et al. does not ever discuss the problem of changing ambient temperature, and its effect. Therefore, it is unreasonable to assume Boismier et al. is teaching that the piezoelectric actuator is being used for the purpose of solving an unacknowledged problem.

Fraunhofer-Ges is directed toward a device used with a rotating tooth wheel mounted on a substratum. These tooth wheels are utilized in the field of medical robotics, as discussed in Fraunhofer-Ges. Specifically, "the intention would be to adduct miniaturized tools – driven by these devices – through the blood vessels to diseased organs." (Col. 1, lines 4-6). Fraunhofer-Ges further provides that the "purpose of this invention is to further study an appropriate micromechanical device that would allow the drive mechanism to act directly on the tooth wheel." (Col. 1, lines 20-22). The invention includes two "actuator arms" (not analogous to the actuator arm in the present invention or in Boismier et al.) that move linearly on a plane parallel to the surface of the substratum in order to turn the tooth wheel. (Col. 1, lines 23-27). In other words, the actuator arms discussed in Fraunhofer-Ges move longitudinally relative to a surface, not perpendicularly to the surface.

The rejection of the Examiner states that "Fraunhofer-Ges also discloses an adjuster applying a gram load to the slider that at least partially depends on the temperature of the layers (i.e. non-electrically actuated)." The Appellants respectfully contend that this statement is inaccurate and misrepresents the teachings of the reference. First, Fraunhofer-Ges teaches longitudinal (parallel) movement of the "actuator arms", as provided above. It is well-known that gram load is a force in a direction that is perpendicular to a storage disk, not parallel to it.

Additionally, Fraunhofer-Ges clearly states that the thermal energy necessary for the operation may be supplied electrically using an electrical supply, or optically using a bundled light beam. (Col. 2, lines 13-18). It is well known that a bundled light beam such as that contemplated by Fraunhofer-Ges similarly requires an electrical supply. It is the use of the electrical supply that causes an increase in the temperature of the adjuster, thereby actuating the adjuster. Thus, Fraunhofer-Ges depends upon actuation of the layers using an electrical means.

Moreover, the Examiner states in his rejection that Fraunhofer-Ges suggests that the thickness of the first layer is different than the thickness of the second layer. Again, this assertion is unsupported. In fact, Fraunhofer-Ges states that the "actuator arm" is made up of a T-shaped plate 2 of polysilicon approximately 0.5 micrometers thick and a metal layer 3 (e.g. gold) of approximately the same thickness. (Col. 2, lines 40-42). In summary, neither Boismier et al. nor Fraunhofer-Ges teach or suggest using layers of different thicknesses.

Thus, assuming arguendo that Boismier et al. and Fraunhofer-Ges could be properly combined (which the Appellants strongly dispute), the combination would yield an electrically (or otherwise actively) controlled actuator having two layers of the same thickness, positioned on a load beam, that would adjust a slider in a direction essentially parallel to a storage disk. Therefore, combining the electrically actuated piezoelectric actuator of Boismier et al. with the electrically actuated layers disclosed in Fraunhofer-Ges does not yield the invention disclosed in many of the rejected claims.

Claims 110, 115 and 119:

For example, claim 110 requires "a drive housing; a storage disk coupled to the drive housing; and a head arm assembly coupled to the drive housing, the head arm assembly including a non-electrically actuated adjuster and a slider coupled to the adjuster, the adjuster adjusting the gram load that is applied to the slider when the temperature of the adjuster changes." As provided herein these features are not taught or suggested by the cited combination of references. Thus, a rejection of claim 110 based on the cited references is unsupported and should be withdrawn. Because dependent claims 115 and 119 depend directly or indirectly from independent claim 110, a rejection of these claims is also believed to be unsupported.

Claims 131, 135 and 137:

Additionally, claim 131 is directed toward a method that requires the steps of "providing a head arm assembly including the slider and a non-electrically actuated adjuster; and adjusting the gram load that is applied to the slider with the adjuster as the temperature of the adjuster changes." These steps are not taught or suggested by the combination of the cited references. Thus, the rejection of claim 131 based on the cited references is unsupported and should be withdrawn. Because claims 135 and 137 depend directly or indirectly from independent claim 131, a rejection of these claims is also believed to be unsupported.

Claims 112, 113 and 133:

As provided herein, the cited combination of references do not teach or suggest a non-electrically actuated adjuster wherein a first layer has a coefficient of thermal expansion that is greater than a coefficient of thermal expansion of a second layer. Therefore, the rejection of claims 112, 113 and 133 based on the cited references is unsupported and should be withdrawn.

Claims 114 and 134:

As provided herein, the cited combination of references do not teach or suggest a non-electrically actuated adjuster wherein a first layer has a modulus of elasticity that is different than a modulus of elasticity of a second layer. Therefore, the rejection of claims 114 and 134 based on the cited references is unsupported and should be withdrawn.

Claims 116 and 136:

As provided herein, the cited combination of references do not teach or suggest a non-electrically actuated adjuster wherein each layer is formed from a different composition of metal. Therefore, the rejection of claims 116 and 136 based on the cited references is unsupported and should be withdrawn.

Claims 120 and 138:

As provided herein, the cited combination of references do not teach or suggest a non-electrically actuated adjuster, and a second adjuster that adjusts the gram load that is applied to the slider, the second adjuster being incorporated as part of an arm beam.

Therefore, the rejection of claims 120 and 138 based on the cited references is unsupported and should be withdrawn.

Claim 117:

As provided herein, the cited combination of references do not teach or suggest a non-electrically actuated adjuster wherein a thickness of a first layer is approximately the same as a thickness of a second layer. Therefore, the rejection of claim 117 based on the cited references is unsupported and should be withdrawn.

Claim 118:

As provided herein, the cited combination of references do not teach or suggest a non-electrically actuated adjuster wherein a thickness of a first layer is different than a thickness of a second layer. Therefore, the rejection of claim 118 based on the cited references is unsupported and should be withdrawn.

Claims 103 and 128:

As provided herein, the cited combination of references do not teach or suggest a first adjuster, and a second adjuster that adjusts the gram load that is applied to the slider, the second adjuster being incorporated as part of an arm beam. Therefore, the rejection of claims 103 and 128 based on the cited references is unsupported and should be withdrawn.

Claims 105, 111, 129 and 132:

As provided herein, the cited combination of references do not teach or suggest a non-electrically actuated adjuster. Therefore, the rejection of claims 105, 111, 129 and 132 based on the cited references is unsupported and should be withdrawn.

Claim 109:

As provided herein, the cited combination of references do not teach or suggest an adjuster wherein a thickness of a first layer is different than a thickness of a second layer. Therefore, the rejection of claim 109 based on the cited references is unsupported and should be withdrawn.

The remaining arguments, B. and C. below, apply to all claims at issue herein. In other words, if the Board finds any one or more of the arguments below to be persuasive, the rejection by the Examiner of each of the claims 98-138 should be reversed.

B. No Motivation to Combine the Cited References

Further, the Examiner provides in his rejection that "one of ordinary skill would have been motivated to having a first composition with a first material property, and the second layer having a second material property that is different than the first material property because the two sets of layers are art-recognized equivalents ...". The Appellants respectfully assert that this contention is unsupported by the cited references. Nowhere in either reference individually, or by combining the references, does it teach or suggest that in the art of disk drives and devices for adjusting gram load that "two sets of layers are art-

recognized equivalents." This is simply a conclusory statement that is wholly unsupported by the cited references or any other source provided by the Examiner.

Claims 98-138 are patentable over the cited combination of references because there is no motivation to use the device used with a rotating tooth wheel that is taught by Fraunhofer-Ges in Boismier et al's disk drive. "The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in the Appellant's disclosure." *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991; Emphasis added). In the present case, neither is found.

Even if the combination of references taught every element of the claimed invention, without a motivation to combine, a rejection based on a prima facie case of obviousness has been held improper. *In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998). Further, the "mere fact that references *can* be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990; emphasis original and added). In the present case, the prior art does not clearly suggest the desirability of the resultant combination. In fact, the resultant combination would have no advantage over the device in Boismier et al. alone.

There is no motivation to combine the electrical actuator taught by Boismier et al. with the device for rotating a tooth wheel disclosed in Fraunhofer-Ges. Assuming, *arguendo,* that one reading Boismier et al. were motivated to seek a different type of actuator for adjusting the gram load of a slider in a disk drive, one would not be motivated to use the device disclosed in Fraunhofer-Ges for rotating a tooth wheel. The actuator disclosed in Fraunhofer-Ges moves linearly along the substratum as illustrated in Figures

1b and 1c (see arrows). Fraunhofer-Ges states that movement of the free end of the actuator arm occurs along the surface in the direction of the fixed end. (Col. 3, lines 1-2). In other words, the actuator in Fraunhofer-Ges extends lengthwise to rotate the tooth wheel, and does not cause a bending motion as disclosed provided Boismier et al. It is the bending motion that adjusts the gram load of the slider.

Thus, because the actuator in Fraunhofer-Ges moves longitudinally rather than perpendicularly, its application in adjusting the gram load would be clearly inferior to that of Boismier et al. on its own. Stated another way, not only would there be no clear benefit to combining the references, there would be a detriment. The resultant combination would essentially be non-functional for the intended purpose. Thus, there is no reasonable expectation for success in combining the cited references.

In summary, there is no suggestion in either of these references that they be combined in the manner suggested by the Examiner. Absent such suggestion, a person skilled in the art who was looking for a solution to the problem of adjusting gram load in a disk drive (requiring movement *perpendicular* to the media, not parallel) would hardly be disposed, on any objective basis, to consider a reference like Fraunhofer-Ges. Fraunhofer-Ges is not only unconcerned with adjusting gram load of a slider in a disk drive, but this reference shows absolutely no recognition of the problem of gram load changing with changing temperature in a disk drive. Therefore, the Appellants submit that it would not be proper to combine these references in the manner suggested by the Examiner.

Additionally, the "references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention ...". Hodosh v. Block Drug Co., Inc. 786

F.2d 1136, 1143, n. 5, 229 USPQ 182, 187, n. 5 (Fed. Cir. 1986). Moreover, the Federal Circuit stated, "[i]t is difficult but necessary that the decisionmaker forget what he or she has been taught ... about the claimed invention and cast the mind back to the time the invention was made (often as here many years), to occupy the mind of one skilled in the art who is presented only with the references, and who is normally guided by the then-accepted wisdom in the art." W.L. Gore & Associates, Inc. v. Garlock, Inc. 721 F.2d 1540, 220 USPQ 303, 313 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). Thus, the motivation to combine device for rotating a tooth wheel for use in medical robotics taught in Fraunhofer-Ges with the adjuster disclosed in Boismier et al. must be gleaned from the teachings of the cited references, which it is not. The motivation to combine the references in the fashion theorized by the Examiner can only be found in the teachings of the present invention. This is impermissible hindsight.

C. Fraunhofer-Ges is Non-analogous Art

Moreover, the Examiner has relied on nonanalogous art in his rejection. The rejection by the Examiner under 35 U.S.C. §103(a), which is based on Fraunhofer-Ges is improper because a skilled artisan in the field of controlling gram load of a slider in a disk drive would not be expected to search nonanalogous art such as Fraunhofer-Ges, which pertains to an actuator for rotating a tooth wheel mounted on a substratum in a medical device using linear movement of the actuator. The Federal Circuit has stated that nonanalogous art is inadmissible evidence of whether or not an invention was obvious under 35 U.S.C. §103(a). In re Oetiker, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992). The determination of whether prior art is analogous involves determining

(i) whether the reference is within the field of the invention's endeavor; or (ii) if the reference is not within the field of the endeavor, whether the field of the reference is reasonably pertinent to the particular problem. Id.

In In re Oetiker, the Appellant claimed an improvement in a hose clamp which differed from the prior art in the presence of a preassembly "hook" which maintained the preassembly condition of the clamp and disengaged automatically when the clamp was tightened. In re Oetiker. The Board relied upon a reference which disclosed a hook and eye fastener for use in garments, reasoning that all hooking problems are analogous. In re Oetiker. The court held that the reference was not within the field of Appellant's endeavor, and was not reasonably pertinent to the particular problem with which the inventor was concerned because it had not been shown that a person of ordinary skill, seeking to solve a problem of fastening a hose clamp, would reasonably be expected to look to fasteners for garments. In re Oetiker.

Here, the Appellants, seeking to solve the problem of adjusting gram load of a slider in a disk drive would not be expected to look to means for rotating tooth wheels in the field of medical robotics. The Appellants concede that the actuators in Boismier et al. and Fraunhofer-Ges both actuate some type of movement. However, the outcome of the actuation, e.g., direction of movement, for each device is completely different, and is performed for completely unrelated purposes. Therefore, Fraunhofer-Ges is considered to be nonanalogous art, and is not properly cited as a reference to reject claims 98-138.

As a consequence, the Appellants submit that the rejection of claims 98-138 under 35 U.S.C. § 103(a) is improper and should be withdrawn, and that claims 98-138 be allowed.

VIII. Conclusion

For the reasons advanced above, Appellants respectfully contend that each claim pending in the instant application is patentable, and should be allowed.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage of fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 50-1141, and please credit any excess fees to such deposit account.

Dated this 30th day of November, 2005.

Respectfully submitted,

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Appendix of Claims

98. A disk drive comprising:

a drive housing;

a storage disk coupled to the drive housing; and

a head arm assembly coupled to the drive housing, the head arm assembly including an adjuster and a slider coupled to the adjuster, the adjuster including a first layer and an adjacent second layer, the first layer having a first composition with a first material property, the second layer having a second composition with a second material property that is different than the first material property, the adjuster applying a gram load to the slider that at least partially depends upon the temperature of the layers.

99. The disk drive of claim 98 wherein the first layer has a coefficient of thermal expansion that is greater than a coefficient of thermal expansion of the second layer.

100. The disk drive of claim 98 wherein the first layer has a coefficient of thermal expansion that is at least approximately 25% greater than a coefficient of thermal expansion of the second layer.

101. The disk drive of claim 98 wherein the first layer has a modulus of elasticity that is different than a modulus of elasticity of the second layer.

102. The disk drive of claim 98 wherein the head arm assembly includes a load beam, and the adjuster is incorporated as part of the load beam.

103. The disk drive of claim 102 further comprising a second adjuster that adjusts the gram load that is applied to the slider, and wherein the head arm assembly includes an arm beam, and the second adjuster is incorporated as part of the arm beam.

104. The disk drive of claim 98 wherein the adjuster adjusts the gram load that is applied to the slider when the temperature of the adjuster changes.

105. The disk drive of claim 98 wherein the adjuster is non-electrically actuated.

106. The disk drive of claim 98 wherein the first layer is secured to the second layer.

107. The disk drive of claim 98 wherein each layer is formed from a different composition of metal.

108. The disk drive of claim 98 wherein a thickness of the first layer is approximately the same as a thickness of the second layer.

109. The disk drive of claim 98 wherein a thickness of the first layer is different than a thickness of the second layer.

110. A disk drive comprising:

a drive housing;

a storage disk coupled to the drive housing; and

a head arm assembly coupled to the drive housing, the head arm assembly including a non-electrically actuated adjuster and a slider coupled to the adjuster, the adjuster adjusting the gram load that is applied to the slider when the temperature of the adjuster changes.

111. The disk drive of claim 110 wherein the adjuster includes a first layer and an adjacent second layer, the first layer having a first composition with a first material property, the second layer having a second composition with a second material property that is different than the first material property.

112. The disk drive of claim 111 wherein the first layer has a coefficient of thermal expansion that is greater than a coefficient of thermal expansion of the second layer.

113. The disk drive of claim 111 wherein the first layer has a coefficient of thermal expansion that is at least approximately 25% greater than a coefficient of thermal expansion of the second layer.

114. The disk drive of claim 111 wherein the first layer has a modulus of elasticity that is different than a modulus of elasticity of the second layer.

115. The disk drive of claim 111 wherein the first layer is secured to the second layer.

116. The disk drive of claim 111 wherein each layer is formed from a different composition of metal.

117. The disk drive of claim 111 wherein a thickness of the first layer is approximately the same as a thickness of the second layer.

118. The disk drive of claim 111 wherein a thickness of the first layer is different than a thickness of the second layer.

119. The disk drive of claim 110 wherein the head arm assembly includes a load beam, and the adjuster is incorporated as part of the load beam.

120. The disk drive of claim 119 further comprising a second adjuster that adjusts the gram load that is applied to the slider, and wherein the head arm assembly includes an arm beam, and the second adjuster is incorporated as part of the arm beam.

121. The disk drive of claim 120 wherein the second adjuster adjusts the gram load that is applied to the slider when the temperature of the second adjuster changes.

122. A method for maintaining a slider within a desired flying height range as temperature changes within a disk drive, the method comprising the steps of:

providing a head arm assembly including the slider and an adjuster, the adjuster including a first layer and an adjacent second layer, the first layer having a first composition with a first material property, the second layer having a second composition with a second material property that is different than the first material property; and

applying a gram load to the slider with the adjuster, the gram load that is applied at least partially depending upon the temperature of the layers.

123. The method of claim 122 wherein the step of providing includes the first layer having a coefficient of thermal expansion that is greater than a coefficient of thermal expansion of the second layer.

124. The method of claim 122 wherein the step of providing includes the first layer having a coefficient of thermal expansion that is at least approximately 25% greater than a coefficient of thermal expansion of the second layer.

125. The method of claim 122 wherein the step of providing includes the first layer having a modulus of elasticity that is different than a modulus of elasticity of the second layer.

126. The method of claim 122 wherein the step of applying includes using the adjuster to dynamically adjust the gram load that is applied to the slider as the temperature of the adjuster changes.

127. The method of claim 122 wherein the step of providing includes incorporating the adjuster as part of a load beam of the head arm assembly.

128. The method of claim 127 further comprising the steps of providing a second adjuster that adjusts the gram load that is applied to the slider, and incorporating the second adjuster as part of an arm beam of the head arm assembly.

129. The method of claim 122 wherein the adjuster is non-electrically actuated.

130. The method of claim 122 wherein the step of providing includes securing the first layer to the second layer.

131. A method for maintaining a slider within a desired flying height range as temperature changes within a disk drive, the method comprising the steps of:

providing a head arm assembly including the slider and a non-electrically actuated adjuster; and

adjusting the gram load that is applied to the slider with the adjuster as the temperature of the adjuster changes.

132. The method of claim 131 wherein the step of providing includes providing the adjuster with a first layer and an adjacent second layer, the first layer having a first composition with a first material property and the second layer having a second composition with a second material property that is different than the first material property.

133. The method of claim 132 wherein the first layer has a coefficient of thermal expansion that is greater than a coefficient of thermal expansion of the second layer.

134. The method of claim 132 wherein the first layer has a modulus of elasticity that is different than a modulus of elasticity of the second layer.

135. The method of claim 132 wherein the first layer is secured to the second layer.

136. The method of claim 132 wherein each layer is formed from a different composition of metal.

137. The method of claim 132 wherein the step of providing includes incorporating the adjuster as part of a load beam of the head arm assembly.

138. The method of claim 137 wherein the step of a providing includes providing a second adjuster that adjusts the gram load that is applied to the slider, the second adjuster being incorporated as part of an arm beam of the head arm assembly.

APPENDIX OF RELATED PROCEEDINGS

Because no related proceedings have occurred, no decisions have been rendered by a court or the Board relative to this matter.

APPENDIX OF EVIDENCE

The Appellant did not submit any evidence which has been relied upon by the Appellant during prosecution in this matter, nor for purposes of the instant appeal.